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BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES, Chairman
GARY PIERCE
SANDRA D. KENNEDY
BOB STUMP
PAUL NEWMAN

IN THE MATTER OF THE APPLICATION OF SOLARCITY FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITITES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION	Docket No. E-20690A-09-0346 **NOTICE OF FILING TESTIMONY OF WESTERN RESOURCE ADVOCATES**

Western Resource Advocates ("WRA"), through its undersigned counsel, hereby provides notice that it has this day filed the written testimony of David Berry in connection with the above-captioned matter.

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RESPECTFULLY SUBMITTED this 30th day of September, 2009.

ARIZONA CENTER FOR LAW IN THE PUBLIC INTEREST

By _____

Timothy M. Hogan
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ORIGINAL and 13 COPIES of the foregoing filed this 30th day of September, 2009, with:

Docketing Supervisor
Docket Control
Arizona Corporation Commission
1200 W. Washington
Phoenix, AZ 85007

COPIES of the foregoing electronically served this 30th day of September, 2009 to:

All Parties of Record

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

KRISTIN K. MAYES, Chairman
GARY PIERCE
PAUL NEWMAN
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IN THE MATTER OF THE APPLICATION OF SOLARCITY CORPORATION FOR A DETERMINATION THAT WHEN IT PROVIDES SOLAR SERVICE TO ARIZONA SCHOOLS, GOVERNMENTS, AND NON-PROFIT ENTITIES IT IS NOT ACTING AS A PUBLIC SERVICE CORPORATION PURSUANT TO ART. 15, SECTION 2 OF THE ARIZONA CONSTITUTION.	DOCKET NO. E-20690A-09-0346

Testimony of

David Berry

Western Resource Advocates

September 30, 2009

Testimony of David Berry
Docket No. E-20690A-09-0346

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List of Exhibits

Introduction

Q. Please state your name and business address.

A. My name is David Berry. My business address is P.O. Box 1064, Scottsdale, Arizona 85252-1064.

Q. By whom are you employed and in what capacity?

A. I am Senior Policy Advisor for Western Resource Advocates.

Q. Please describe Western Resource Advocates.

A. Founded in 1989, Western Resource Advocates (WRA) is a non-profit environmental law and policy organization dedicated to restoring and protecting the natural environment of the Interior American West. We have developed strategic programs in three areas: water, energy, and lands. We meet our goals in collaboration with other environmental and community groups and by developing solutions that are appropriate to the environmental, economic and cultural framework of the region. Western Resource Advocates has been involved in Arizona utility regulatory issues for about 20 years.

Q. What are your professional qualifications for presenting testimony in this docket?

A. Exhibit DB-1 summarizes my qualifications.

Q. What is the purpose of your testimony?

A. My testimony sets forth reasons that SolarCity is not a public service corporation when it offers solar service agreements.

SolarCity's Request

Q. What is SolarCity requesting in this docket?

A. SolarCity is requesting that the Commission find that, when SolarCity enters into a solar services agreement with a tax-exempt entity, SolarCity is not a public service corporation.

Q. SolarCity included in its filing a copy of its contract to provide solar services to the Scottsdale Unified School District. Please summarize the solar service agreement provided in SolarCity's application.

A. According to the contract included in its petition, SolarCity will provide the financing, design, development, and operation of a 399.6 kW (DC) photovoltaic (PV) system at Coronado High School. The PV system is expected to produce about 712,000 kWh per year. The customer pays $0.11 per kWh for electricity generated by the PV system over a 15 year period. The parties may agree to extend the term of the contract. The customer also has the option to purchase the PV system at specified times. The customer takes title to the electricity the instant it is generated. A second similar contract for Desert Mountain High School is described in Staff's memorandum filed in this docket on August 14, 2009. The Desert Mountain project is 968 kW.

Q. Would other solar service agreements with other customers be priced the same way?

A. Broadly speaking, yes. However, the specific price would reflect the cost of the system, the applicability of various tax incentives, the amount of the utility incentive, and perhaps other factors. The price may or may not be the same in every year, but the contract would specify the price in each year or the formula for calculating the price in each year.

Q. From the perspective of the purchaser, what benefits do solar service agreements provide?

A. Distributed solar energy projects provide economic benefits and environmental benefits.

The two contracts described in Staff's memorandum provide hedges against uncertain future rate increases by SRP or APS. The hedging aspect of the solar service agreements is evident when examining the spreadsheet attachments in Staff's August 14, 2009 filing in this docket. Future utility prices over the multi-year contract period are uncertain but the solar service agreements have a fixed price. The schools and SolarCity prepared analyses of the solar energy price under assumptions about future utility rates and the schools concluded that a fixed price of $0.11 per kWh for solar energy was an acceptable hedge against future utility rate increases. More generally, Mayor Gordon's letter filed in this docket on September 8, 2009 recognizes the hedge value of solar service agreements.

Solar service agreements enable the consumer to obtain electricity from photovoltaic or other solar resources. These resources typically emit no pollutants into the atmosphere in contrast to power generated from coal or gas-fired generators by utilities. Moreover, solar resources located on the customer's premises require little or no water in contrast to typical

utility steam generation technologies. Thus, the consumer can meet part of his or her demand for electricity with clean energy resources.

Market for Distributed Photovoltaic Systems

Q. How much photovoltaic generation capacity is there in Arizona and in other states?

A. The table below compares Arizona photovoltaic installations with those in other southwestern states and the US.[1] Note that some of the installations are not at customer sites but are central station projects that provide power directly to a utility. As of the end of 2008, there were about 25 MW of photovoltaic installations in Arizona, of which 6.4 MW were installed in 2008. The average nonresidential photovoltaic installation in 2008 was about 110 kW and the average residential installation was about 4.9 kW.[2]

State	Total Grid Connected Photovoltaic Installed Capacity 2008 (MW DC)	Grid Connected Photovoltaic Capacity Additions in 2008 (MW DC)
Arizona	25.3	6.4
New Mexico	1.0	0.6
Colorado	35.7	21.7
Utah	0.2	-
Nevada	34.2	14.9
California	528.3	178.7
US	**792**	**289.8**

Q. Please compare the agreement SolarCity proposes to offer and distributed energy services offered through other types of arrangements.

A. In the solar energy industry, services from distributed solar energy projects may be offered to customers in a variety of ways. For example, the customer may simply purchase the equipment, perhaps with financing. Or the customer could lease the solar energy equipment. Or a customer may enter into a purchased power agreement with a seller. The Lawrence Berkeley National Laboratory defines a purchased power agreement as a third-party ownership structure in which the site host neither owns nor leases the PV system, but instead agrees to buy all of the electricity generated by the system for a specified term.[3] The solar service agreement offered by SolarCity is a purchased power agreement.

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[1] Larry Sherwood, *U.S. Solar Market Trends 2008*, Interstate Renewable Energy Council, July 2009, pp. 7 & 16.

[2] Larry Sherwood, *U.S. Solar Market Trends 2008*, Interstate Renewable Energy Council, July 2009, p. 5.

[3] Mark Bolinger, *Financing Non-Residential Photovoltaic Projects: Options and Implications*, Lawrence Berkeley National Laboratory, LBNL-1410E, January 2009, p. 17.

In each of these cases, and in variations on them, the technology and equipment are the same. The differences arise from payment and ownership arrangements. Customers may or may not purchase maintenance service from the seller.

Q. Are purchased power agreements widely used in the solar industry?

A. Yes. According to the Interstate Renewable Energy Council (IREC), nearly all of the larger installations and many medium size non-residential installations use purchased power agreements and at least one company offers purchased power agreements for residential customers.[4]

Q. Does the Commission typically regulate the price of distributed energy equipment purchased by a customer, such as a rooftop PV system?

A. No. Many homeowners and businesses have purchased rooftop PV systems throughout Arizona and, to my knowledge, the Commission has not attempted to regulate the price of this equipment.

Distributed Solar Energy Systems and the Commission's Renewable Energy Standard

Q. How does this case relate to the Commission's policies regarding renewable energy?

A. The Commission's Renewable Energy Standard (A.A.C. R14-2-1801 *et seq.*) requires electric utilities to meet certain goals regarding central station and distributed renewable energy production. The type of financial arrangement used by SolarCity is an attractive approach for installing distributed photovoltaic energy projects on the premises of tax exempt entities such as schools, nonprofit organizations, and government agencies. Purchased power agreements for distributed solar energy would help utilities meet their distributed energy requirements under the Renewable Energy Standard.

However, Mr. Rive testified (response to question 25) that regulation is likely to drive out numerous, if not all, solar energy providers from Arizona. Mr. Rive states that SolarCity's profits and its investors' returns would suffer, causing them to look outside Arizona for investments. Customers would then have to evaluate other, less financially favorable, ways of obtaining solar energy on their premises. Consequently, it will be more difficult or more

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[4] Larry Sherwood, *U.S. Solar Market Trends 2008*, Interstate Renewable Energy Council, July 2009, p. 4.

expensive for utilities to meet their distributed energy requirements for renewable resources under the Renewable Energy Standard.

Q. Please explain why it would be more difficult or expensive for utilities to meet their distributed renewable energy requirements.

A. Solar service agreements are attractive because they provide financing for the customer who then does not have to pay for the distributed renewable energy facility up-front. Moreover, for those customers who would not be eligible for tax incentives (such as public schools), the solar service agreements provided by SolarCity incorporate the effects of the tax incentives and lower the cost to the customer. In the absence of solar service agreements, customers will have to look to other ways to acquire on-site renewable energy such as an outright purchase of the facility, leasing, or finding alternative financing.[5] These options are likely to either require large up-front payments which make distributed renewable energy less attractive, or may not have such favorable payment structures because they do not incorporate the effects of tax incentives. Consequently, the higher cost of distributed renewable energy projects will reduce the quantity of distributed renewable energy projects purchased. To offset the decline in demand, utilities will have to offer larger incentives to meet their renewable energy requirements.

Solar Service Agreements and Public Service Corporations

Q. Does the fact that SolarCity charges per kWh for photovoltaic energy mean that it is a public service corporation?

A. No. The Corporation Commission typically sets rates per kWh consumed but there is no requirement that it do so. It could set rates based on expected demand and authorize only a monthly service charge, for example. Street lighting service is often provided in this way. As another example, landline phone service in Arizona is typically priced as a monthly service charge unrelated to the minutes of calling. Looking at how SolarCity structures charges for its service is irrelevant to whether it is a public service corporation. Charging for service tells us nothing about whether a company is a public service corporation -- all suppliers charge for their services, regardless of what industry they are in.

[5] Financing the project would likely involve payments to the lender regardless of how well the project performs. This contrasts with solar service agreements in which payments depend on the performance of the distributed energy system.

Q. What factors should be considered in determining whether SolarCity is a public service corporation?

A. I reviewed the factors considered in previous disputes about whether a company is a public service corporation.[6] My review considered economic and related factors and was not a legal review. Factors to be considered in determining whether a company is a public service corporation are: dedication of private property to public use, a public interest in the service, the essential nature of the service, monopoly pricing, the presence of uninformed customers, and an obligation to serve all or nearly all requests for service.

Use of solar service agreements does not imply that the provider is a public service corporation as explained below.

- ***Absence of dedication of private property to public use***. The public does not use a photovoltaic system installed on a customer's property. A customer-sited solar energy facility primarily serves only that customer and may only incidentally sell excess generation back to the utility.

- ***Absence of a public interest in customer-sited distributed energy projects***. A characteristic of a public service corporation is that its activities require governmental control of its rates, charges and methods of operation. There is a long history of public interest in the production and sale of electricity from central station generation resources and in the transmission and distribution of that electricity. However, there is little public interest when an individual customer obtains some of his or her electricity via a generation facility located at the customer's premises. The service affects only the customer on whose premises the distributed energy project is located. The service is provided primarily for the benefit of the property owner, not for the general public.[7] Thus, no governmental control of the price and method of operation is required.

- ***Non-essential nature of the service***. Regulation of public service corporations is intended to preserve and promote those services which are indispensable to large segments of the population. While furnishing electricity through a network of generators, transmission facilities, and distribution facilities may be regarded as an

[6] The cases I reviewed are: Trico Electric Cooperative v. Corporation Commission, 86 Ariz. 27; 339 P. 2d 1046; 1959. General Alarm v. Underdown, 76 Ariz. 235; 262 P. 2d 671; 1953. Natural Gas Service Co. v. Serv-Yu Cooperative, 70 Ariz. 235; 219 P. 2d 324; 1950. Southwest Gas Corp. v. Arizona Corporation Commission, 169 Ariz. 279, 818 P. 2d 714 (App. 1991). Phelps Dodge Corp. v. Ariz. Elec. Power Coop., Inc., 207 Ariz. 95, 83 P. 3d 573 (App. 2004). Southwest Transmission Cooperative v. Arizona Corporation Commission (1 CA-CV 05-0369, 2006).

[7] Environmental benefits would also affect others.

essential service, a grid-connected consumer does not have to obtain solar electric services provided by facilities located on-site in order to function. Rather than seeking essential services, that customer could be seeking a hedge against higher utility rates or seeking energy resources with little or no environmental impact.

- ***Absence of a monopoly.*** A fundamental reason for regulating the sale of electricity to retail consumers is that the sellers have been considered to be "natural monopolies." A natural monopoly occurs when one firm can supply all the demand in a market at a price lower than two or more firms can. This situation can arise from economies of scale.[8] In the case at hand, there are multiple companies marketing and supplying distributed generation from renewable energy resources. SolarCity is one such company. These companies operate in regional, national, or international markets and compete with each other.[9] They are not in a position to monopolize the Arizona market in distributed generation or central station generation and there are no large barriers to entry into the market, except perhaps the threat of rate regulation. There is no evidence that competition might lead to abuse detrimental to the public interest that could be remedied by rate regulation.

- ***Informed customers.*** One reason for regulation of public service corporations may be that consumers are uninformed. In this instance, school district managers, government agencies, and other tax exempt entities are, in general, capable of comparing options for distributed energy resources as well as the many other inputs into their activities. The school district managers entering into the solar service agreements with SolarCity conducted their own analyses of the benefits of the solar service agreements. There is no reason to suppose that they need regulatory assistance in bargaining with competing suppliers of distributed energy facilities.

- ***No obligation to serve***. SolarCity is not obligated to serve all potential customers. Mr. Rive states (response to question 23) that not every consumer is a suitable candidate for a solar service agreement. For example, some consumers may not

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[8] Recently, some states have opened the market for retail sales of electricity to competition.

[9] Other companies operating in Arizona include the following: American Solar Electric (http://www.americanpv.com); SPG Solar (http://www.renewableenergyworld.com/rea/partner/spg-solar-inc-1452/news/article/2009/04/spg-solar-expands-operations-into-arizona); Dependable Solar (http://www.dependablesolarproducts.com); Wilson Electric Solar Division (http://www.wilsonelectric.net/solar.htm); and PerfectPower Inc. (http://www.perfectpowernetwork.com). SunRun offers a solar lease for Arizona residential customers and offers monitoring, maintenance, repairs, insurance and performance guarantees (http://www.renewableenergyworld.com/rea/news/article/2009/04/sunrun-comes-to-arizona). SunRun also offers purchased power agreements (http://www.sunrunhome.com/learn_about_solar/solar_financing/). These companies may or may not offer solar service agreements but they are all in the distributed solar energy business.

have sufficient space in which to install a solar energy system, or the site may receive little direct sunlight, or a building may not be structurally suitable for a solar energy system, or the customer's credit may be unacceptable to SolarCity, and so forth. Moreover, a seller of solar energy services may choose, as a business decision, to market only to certain types of customers, such as high income residential customers, builders of new homes, customers in a particular industry, etc., and not to all potential customers.

Q. If a customer were to purchase outright a photovoltaic system like those located on the two schools in this case, how would you view the factors set forth above?

A. The analysis of the factors would be the same – there would be no dedication of private property to a public use; there would be no public interest in the customer's PV system; the service would be non-essential, instead providing environmental benefits and a hedge against long term utility rate increases; there would be no monopoly of supply; customers would be informed about their choices by conducting their own analyses; and the seller of the PV systems would have no obligation to sell the equipment to all potential buyers. In this case the transaction is not subject to rate regulation but the distributed renewable energy facility is the same as when a solar service agreement is used.

The Regulatory Process Applied to SolarCity

Q. If the Commission regulates solar service agreements, how would that regulation likely proceed?

A. Assuming SolarCity provides solar service agreements subject to rate regulation, several regulatory activities would typically take place, including the following:

- **Obtaining a CC&N:** SolarCity would have to obtain a Certificate of Convenience and Necessity (CC&N). A.A.C. R14-2-202 sets forth the requirements for filing for a CC&N. These requirements include submitting proposed rates, financial information, a description of the service territory, and estimated number of customers to be served each year for the first five years. Moreover, SolarCity would have to obtain permission from the Commission to discontinue or abandon its service (A.A.C. R14-2-202B).

- **Filing of Rate Cases:** Filing requirements for rate cases are set forth in A.A.C. R14-2-103 and go on for approximately 50 pages.

  - ✓ **Finding of fair value**: SolarCity's rates would have to be set on the basis of a finding of fair value. Under the Phelps Dodge decision, the Arizona Constitution requires the Commission to determine the fair value of Arizona property owned by a public

service corporation and consider that determination in establishing just and reasonable rates, even in competitive markets. Although the Commission may set a range of just and reasonable rates within which public service corporations can compete, the Commission cannot carry out its constitutional mandate by allowing competitive market forces to exclusively determine what is a just and reasonable rate (paragraphs 152, 153).

- ✓ **Determination of rate base**: If SolarCity offered regulated service, its "rate base" could change dramatically in a short period of time due to additional installations and changing technology. This would seem to necessitate frequent rate cases.

- ✓ **Authorization of a rate of return**: If SolarCity offered regulated service, the Commission would set rates based on an authorized rate of return which might be less than SolarCity could earn in an unregulated competitive market in another state. SolarCity might consider discontinuing new solar service agreements in Arizona if profits were limited relative to other states.

- **Reporting**: SolarCity would have to submit reports and plans required by the Commission.

- **Renewable Energy Standard**: SolarCity would be subject to the Renewable Energy Standard as a public service corporation serving retail electric load in Arizona. The standard exempts Utility Distribution Companies with more than half their customers located outside Arizona. A Utility Distribution Company is a public service corporation that operates, constructs, or maintains an electric distribution system for delivery of power to retail consumers. SolarCity is not a Utility Distribution Company as it has no distribution system serving multiple customers, so it cannot be exempted. Consequently, SolarCity would have to divide its business between residential and nonresidential customers as prescribed in the renewable energy standard.

Recommendation

Q. What is your recommendation in this matter?

A. I recommend that the Commission conclude that when a company uses purchased power agreements for distributed generation from renewable resources, such as solar service agreements, it is not acting as a public service corporation. That company is instead providing a hedging service to individual customers, not to the public at large, and is creating environmental benefits as a result of individual customers' decisions.

The service provided under a solar service agreement has no attributes of services furnished by a traditional public service corporation. There is no dedication of private property to public use, there is no public interest in the service which is provided for the benefit of the customer on whose property the distributed energy system is located, the service is not essential, the market is competitive and is not subject to monopoly pricing, customers are well informed, and there is no obligation to serve all or nearly all requests for service.

Additionally, there is a mismatch between the purpose and conduct of regulation and the market for distributed solar energy. For a provider of purchased power agreements for distributed generation, such as SolarCity, to go through an expensive and complex regulatory process to provide an individual customer with a hedge against uncertain future utility rates and to provide environmental benefits is needlessly burdensome and unreasonably intrusive.

Finally, rate regulation is counterproductive. SolarCity indicates that rate regulation required for public service corporations would likely diminish the use of solar service agreements and reduce the range of options available to consumers for obtaining solar energy on their premises. The result would be more expensive options for consumers in many cases. If the Commission desires to encourage distributed renewable energy projects under these circumstances, it would likely have to authorize utilities to offer larger incentives for distributed energy projects.

Q. Does this conclude your testimony?

A. Yes.

Exhibit DB-1
Qualifications of David Berry

Experience

Western Resource Advocates (Scottsdale, AZ), Senior Policy Advisor (2001 – present).
Navigant Consulting, Inc. (Phoenix, AZ), Senior Engagement Manager (1997-2001).
Arizona Corporation Commission (Phoenix, AZ), Chief Economist and Chief, Economics and Research (1985 – 1996).
Boston University Department of Urban Affairs and Planning, Lecturer (1981-1985).
Abt Associates, Inc. (Cambridge, MA), Senior Analyst (1979-1985).
University of Illinois Department of Urban and Regional Planning, Visiting Assistant Professor (1977-1979).
University of Pennsylvania Regional Science Department, Lecturer (1974 –1977).
Regional Science Research Institute (Philadelphia, PA), Research Associate (1972-1977).
U.S. Army (1969-1971).

Education

Ph.D. Regional Science, University of Pennsylvania
MA Regional Science, University of Pennsylvania
BA Geography, Syracuse University

Selected Articles & Papers

"Innovation and the Price of Wind Energy in the US," *Energy Policy* (forthcoming).
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(with Thomas Plaut) "Retaining Agricultural Activities Under Urban Pressures," *Policy Sciences*, vol. 9 (April 1978) 153-178.

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"Preservation of Open Space and the Concept of Value," *American Journal of Economics and Sociology*, vol. 35 (April 1976) 113-124.

(with Gene Steiker) "The Concept of Justice in Regional Planning," *Journal of the American Institute of Planners*, vol. 40 (November 1974) 414-421.

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A Clean Electric Energy Strategy for Arizona, Western Resource Advocates, 2007.

(with others) *Using Natural Gas More Efficiently*, Western Resource Advocates, 2005.

(with John Nielsen, Ron Lehr, Susan Innis, et al.) *A Balanced Energy Plan for the Interior West*, Western Resource Advocates, 2004.

Testimony and Public Comment Before:

Maine Land Use Regulation Commission
Arizona Corporation Commission
New Mexico Public Regulation Commission
Public Utilities Commission of Nevada